

**International Harmonised Research Activities
Vehicle Compatibility Working Group**

Minutes of the Eighth Meeting, held at TRL on 14-15 June 2000

Present:

P O'Reilly	Chairman	D Dalmotas	Canada
A Hobbs	Secretary	S Tylko	Canada
T Hollowell	USA	P Prasad	US Industry
E Faerber	Europe (P)	R Zobel	European Industry
C Adalian	Europe	K Tateishi	Japanese Industry
K Seyer	Australia		
M Terrell	Australia		
K Mizuno	Japan	(P) - Part attendance only	

Apologies for Absence

An apology for absence was received from J Wicher. Miss C Adalian replaced D Cesari for the meeting.

Minutes of the Seventh and the Ad Hoc Meeting in Wolfsburg

The minutes were agreed.

Actions from the Minutes

Many electronic versions of documents are not being sent to the secretary. All members are asked to forward documents as soon as possible.

Members are asked to review the minutes for confidential items. They are to be put on the Internet site.

IHRA Steering Committee

The chairman informed the group of what he had reported to the Steering Committee. He will supply an electronic copy for distribution with the minutes (Doc 49).

Action O'Reilly

Copies of the IHRA Critical Self Review document, with revised dates, was supplied to members (Doc 50). Early action is required by all members of the group.

Technical Presentations

NHTSA

Dr Hollowell gave several presentations. The first covered load cell wall data from US NCAP tests (Doc 51). This data now excluded cases where only six load cells had been used. He showed the relationship between peak load cell force and car size. There were some questions about the maximum deflections. Dr Hollowell will check this.

Action Hollowell

He also showed a test with a load cell on an MDB (Doc 52). In the test the MDB overrode the car which pitched down in the impact. It was thought that this might cause problems with measuring the centre of force height.

In NHTSA's future programme, they will look at side impact varying mass and ride height.

Based on NASS data, Dr Hollowell presented data for drivers with airbags with the impact angle resolved to ten degrees (Doc 53).

EEVC

Dr Adalian explained that the EEVC were planning a work programme and proposal for further funding from the European Commission. It is hoped that this will be funded under the Fifth Framework Programme. She went on to outline the content of the programme, which will build on that carried out earlier.

Japan

Mr Tateishi presented information about the Japanese fleet, looking at mass, front end dimensions and front end stiffness (Doc 54). He reported that the fiftieth percentile car mass in Japan is 1150 kg.

Mr Mizuno gave copies of the latest JNCAP report and CDS to the members (Doc 55). Extra copies are available from Mr Mizuno.

He also reported on structural overload and MDB tests (Doc 56). The overload test was carried out against an EEVC barrier face at 80 km/h. The force / displacement traces showed that the maximum force generated in the test at 80 km/h was the same as that in a test at 64 km/h, for that car. In the Minicar overload test, the peak force was 320 kN.

Canada

Mr Dalmotas explained the Canadian side impact programme and its relevance to compatibility (Doc 57). He believed that bullet vehicle geometry was important but thought that stiffness had little effect. In his experience a stiffer MDB was less aggressive than a weak one.

Australia

Mr Seyer reported that they intended to test using the NHTSA MDB with load cells and will report the findings at a future meeting.

US Industry

Dr Prasad explained the work carried out by Ford on Frontal impact. He was concerned to reduce over-riding by SUVs and explained the Blocker beams being fitted to Ford SUVs. Ford are also carrying out some system modelling in parallel with that carried out by NHTSA.

Dr Hollowell agreed to supply an electronic copy of the crash test work carried out by industry and presented in San Diego.

Action Hollowell

European Industry

Dr Zobel reported that the EUCAR group are discussing their results and will decide what they can report. He gave out copies of a CD containing the output from the Joint EUCAR / EEVC Workshop, held in Wolfsburg (Doc 58).

Japanese Industry

Mr Tateishi reported on Over-ride Reproduction Tests. In these tests the car was impacted into a rigid block 405 mm high. In one configuration, a deformable element was fitted above the rigid block. The element consisted of three EEVC barrier faces, in line (Doc 59). They were giving consideration to how a car's structure could be designed to prevent the over-riding.

Forward Programme

The Gantt chart was updated and will be re-issued with the minutes (Doc 13e).

Key Elements

A general discussion was held regarding the key elements relevant to compatibility. Those discussed were;

Frontal Impact

1. Improve compatibility without compromising self protection
2. Good structural interaction
3. Predictable performance of car structure in crashes
4. Maintenance of passenger compartment integrity, avoiding collapse.
5. Control the minimum strength of the passenger compartment.
6. Manage the deceleration time histories of both vehicles.
7. Mass, stiffness and geometry all important but may not be able to control mass.
8. Must be aware of the limitations of current restraints.
9. Take account of the future capabilities of restraint technology.
10. A staged approach may be possible.

Side Impact

1. Bullet vehicle geometry has greatest effect.
 - a. Promote vertical intrusion profile.
 - b. Avoid producing thoracic lead.
 - c. Promote sill engagement.
 - d. Promote distributed loading on occupant.
2. Bullet vehicle mass and stiffness have lesser effect.
3. Stiffness distribution of the bullet vehicle relevant
4. Only early stiffness of bullet may be relevant, circa 100 mm.

Self protection must consider current vehicle fleet characteristics.

Possible Assessment methods

1. Full with impact against load cell wall
 - a. With or without honeycomb face
 - b. Control of force homogeneity
 - c. Centre of force height
2. Overload test for passenger compartment strength
 - a. Bulkhead concept
 - b. Circa 30g maximum average acceleration
3. Offset deformable barrier test with load cells
 - a. Need to generate lateral shear
 - b. Need to generate vertical shear
 - c. Need to avoid bottoming out v energy absorption capability
 - d. Use of MDB

Other Business

Dr Prasad will send a CD to each member detailing the structural data collected by AAM.

Action Prasad

Mr Faerber will send each member a copy of the EEVC Project Report, prepared for the European Commission.

Action Faerber

Dr Hollowell proposed that Europe should develop a systems model similar to that being developed for the US.

Next Meeting

The next meeting will be held on 16-17 November 2000, at DETR in London. This follows an IHRA Frontal Impact meeting on 15 November 2000. Further dates have also been reserved in case another meeting is required. They are 13 - 14 December 2000, in Australia. This follows an IHRA Side Impact meeting on 11 -12 December 2000.

C A Hobbs
22 September 2000